

Remarks

Amendments to specification

The specification is amended on page 5 to include the SEQ ID NOs of the sequences discussed in the descriptions of Figures 9A-9B and 10A-10B, and to correct the disclosed length of SEQ ID NO:26, which is 4436bp. The replacement paragraph on page 25 differs from the previous version by correcting the disclosed length of SEQ ID NO:26.

The amendments to the specification are made to correct obvious errors and omissions. No new matter is added.

Amendments to claims

Claims 1 and 11 are canceled.

Claims that previously depended from claim 1 have been amended to depend from claim 20.

Claim 19 is amended to depend from claim 2.

Claim 20 is amended in response to the Examiner's objection to a typographical error, and is further amended to refer to "said enhancer" in part (v) to correct a lack of antecedent basis.

No new matter is added.

Drawings

In paragraph 7, p. 2 of the office action, the Examiner objected to Figures 9A, 9B, 10A and 10B, because seq. id nos. are not provided in the figures or the corresponding description of the figures. The Examiner gave the option of either providing new drawings that refer to seq id nos. or amending the specification. The specification has been amended accordingly, thus it is believed that this objection is overcome.

Claim Objections

Claim 20 is amended to corrected the typographical error noted by the Examiner in paragraph no. 8 on page 3 of the office action. Thus, it is believed that this objection is overcome.

Claim Rejections 35 U.S.C. § 112

Claim 19, which was rejected for reasons asserted in the paragraph numbered 10 on p. 3 of the office action, now depends from claim 2, which further depends from claim 20. Thus, it is believed that the rejection raised is overcome.

Claims 2-11, 16, 17, and 19, which were rejected under 35 U.S.C. § 112, first paragraph, for the reasons asserted in the paragraph numbered 11 on p. 4 of the office action, now depend from claim 20. Thus, it is believed that the rejection raised is overcome.

Claim Rejections 35 U.S.C. § 102

Claims 8-10, 17 and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Jones *et al.* (1994). For a proper rejection under 35 U.S.C. § 102, the cited prior reference must disclose every element of the claimed invention. Claim 20, recites: "...transforming cells of a tomato plant with a plant cell expression vector having an *E. coli* origin of replication, **an enhancer**..." (emphasis added). With respect to the enhancer element, the Examiner states "the terms 'enhance' and 'enhancer' are subjective. One of skill in the art at the time of Applicant's invention would have recognized that the method of Jones would work as an enhancer, if the transposon functioned to disrupt a repressor region....". Applicants respectfully disagree with the Examiner's rationale. Contrary to the Examiner's assertion, the term "enhancer" is not subjective, but rather has a well-defined meaning within the art of transgenic plants and refers to a DNA regulatory sequence that influences transcription of a structural gene (see attached Exhibit A). Jones *et al.* (1994) do not disclose a plant cell expression vector that comprises an enhancer. Accordingly, the rejection should be withdrawn.

Claim Rejections 35 U.S.C. § 103

Claims 2-11, 16, 17, and 19-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Walden *et al.* 1994 in view of Jones *et al.* 1992.

Walden *et al.* is a review article summarizing studies that reportedly show the successful use of activation tagging in tomato to identify genes implicated in plant growth and development. However, the various publications by the Walden *et al.* lab relating to these results were subsequently retracted (see Applicant's response filed August 6, 2001). Therefore, at the time of the Applicant's invention, the prior art did not teach activation tagging in tobacco.

The Examiner relies on Jones for teaching transposon tagging in tomato, and that the method functions similarly in tobacco and tomato. However, given the inadequacies of the Walden *et al.* reference, one skilled in the art would not have had a reasonable expectation of success from the combined teachings of Walden *et al.* and Jones *et al.* that activation tagging would be successful in tomato.

With respect to claims 21 and 22, the Examiner states that "it is unclear from the instant specification where the examples of unexpected results are taught in relation to the

instant claims." While, unexpected results may be demonstrated to rebut a prima facie case of obviousness, in the instant case, a prima facie case of obviousness against claims 21 and 22 has not yet been established because the Examiner has not shown how the prior art teaches the features of these claims. Accordingly, the rejection should be withdrawn.

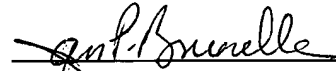
For these reasons, the rejections under 35 U.S.C. § 103 should be withdrawn.

Closing remarks

It is believed that all of the rejections are overcome, and that the claims are in condition for allowance. The examiner is encouraged to telephone the undersigned to discuss any further issues that may need resolution prior to allowance.

Respectfully submitted,

Dated: January 2, 2004


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EXHIBIT

MOLECULAR BIOLOGY OF
THE CELL
THIRD EDITION

Bruce Alberts • Dennis Bray
Julian Lewis • Martin Raff • Keith Roberts
James D. Watson



Garland Publishing, Inc.
New York & London

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JAN 06 2004

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endothelium

Single sheet of highly flattened cells (endothelial cells) that forms the lining of all blood vessels. Regulates exchanges between the bloodstream and surrounding tissues and is usually surrounded by a basal lamina.

enhancer

Regulatory DNA sequence to which gene regulatory proteins bind, influencing the rate of transcription of a structural gene that can be many thousands of base pairs away.

entropy

Thermodynamic quantity that measures the degree of disorder in a system; the higher the entropy, the more the disorder.

enzyme

Protein that catalyzes a specific chemical reaction.

epimerization

Reaction that alters the steric arrangement around one atom, as in a sugar molecule.

epinephrine—see adrenaline**epithelium**

Coherent cell sheet formed from one or more layers of cells covering an external surface or lining a cavity.

epitope—see antigenic determinant**equilibrium constant (*K*)**

Ratio of forward and reverse rate constants for a reaction and equal to the association constant. (See Figure 3–9.)

erythrocyte (red blood cell)

Small, hemoglobin-containing blood cell of vertebrates that transports oxygen and carbon dioxide to and from tissues. (From Greek *eruthros*, red.)

ER—see endoplasmic reticulum***Escherichia coli* (*E. coli*)**

Rodlike bacterium normally found in the colon of humans and other mammals and widely used in biomedical research.

ester

Molecule formed by the condensation reaction of an alcohol group with an acidic group. Most phosphate groups are esters. (See Panel 2–2, pp. 50–51.)

ethyl ($-\text{CH}_2\text{CH}_3$)

Hydrophobic chemical group derived from ethane (CH_3CH_3).

eucaryote (eukaryote)

Living organism composed of one or more cells with a distinct nucleus and cytoplasm. Includes all forms of life except viruses and bacteria (procaryotes).

euchromatin

Region of an interphase chromosome that stains diffusely; “normal” chromatin, as opposed to the more condensed heterochromatin.

exocytosis

Process by which most molecules are secreted from a eucaryotic cell. These molecules are packaged in membrane-bounded vesicles that fuse with the plasma membrane, releasing their contents to the outside.

exon

Segment of a eucaryotic gene that consists of DNA coding for a sequence of nucleotides in mRNA; an exon can

encode amino acids in a protein. Usually adjacent to a noncoding DNA segment called an intron.

expression

Production of an observable phenotype by a gene—usually by the synthesis of a protein.

expression vector

A virus or plasmid that carries a DNA sequence into a suitable host cell and there directs the synthesis of a specific protein.

extracellular matrix (ECM)

Complex network of polysaccharides (such as glycosaminoglycans or cellulose) and proteins (such as collagen) secreted by cells. Serves as a structural element in tissues and also influences their development and physiology.

fatty acid

Compound such as palmitic acid that has a carboxylic acid attached to a long hydrocarbon chain. Used as a major source of energy during metabolism and as a starting point for the synthesis of phospholipids. (See Panel 2–4, pp. 54–55.)

fertilization

Fusion of a male and a female gamete (both haploid) to form a diploid zygote, which develops into a new individual.

fibroblast

Common cell type found in connective tissue. Secretes an extracellular matrix rich in collagen and other extracellular matrix macromolecules. Migrates and proliferates readily in wounded tissue and in tissue culture.

fixative

Chemical reagent such as formaldehyde or osmium tetroxide used to preserve cells for microscopy. Samples treated with these reagents are said to be “fixed,” and the process is called fixation.

flagellum (plural flagella)

Long, whiplike protrusion whose undulations drive a cell through a fluid medium. Eucaryotic flagella are longer versions of cilia; bacterial flagella are completely different, being smaller and simpler in construction.

fluorescein

Fluorescent dye that fluoresces green when illuminated with blue light or ultraviolet light.

fluorescent dye

Molecule that absorbs light at one wavelength and responds by emitting light at another wavelength; the emitted light is of longer wavelength (and hence of lower energy) than the light absorbed.

focal contact (adhesion plaque)

Small region on the surface of a fibroblast or other cell that is anchored to the extracellular matrix. The attachment is mediated by transmembrane proteins such as integrins, which are linked, through other proteins, to actin filaments in the cytoplasm.

follicle cell

One of the cell types that surround a developing oocyte or egg.

free energy (*G*)

Energy that can be extracted from a system to drive reactions. Takes into account changes in both energy and entropy.